Amendments to the Claims

The following Listing of Claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims

1. (Currently Amended) An adhesive tape comprising:

a film substrate having one or more individual layers, wherein the film substrate has (i) an elastic modulus of at least 7.0×10^8 Pa at a temperature below an activation temperature, said activation temperature ranging from about 25°C to about 100°C, (ii) an elastic modulus of not greater than 5.0×10^8 Pa at a temperature exceeding said activation temperature, and (iii) an elongation at break of at least 150% at a temperature exceeding said activation temperature, the film substrate comprising an aliphatic polyester, a polycaprolactone, or a combination thereof;

an adhesive layer disposed on at least one surface of the film substrate; and

a temperature-indicating material disposed within or on the film substrate,

wherein the temperature-indicating material experiences a color change when exposed to a color-changing temperature.

2.–3. (Canceled)

4. (Original) The adhesive tape of claim 1, wherein the temperature-indicating material comprises a higher fatty acid ester; mercury iodide complexes of cholesterol; bianthrone; cyanine pigments; spirofuran-type compounds; triphenylmethane-type Ca and Mg salts; cobalt; nickel; iron; copper; chromium; manganese; lead; or a combination thereof.

5. (Original) The adhesive tape of claim 1, wherein said color-changing temperature is equal to or greater than the activation temperature.

6. (Original) The adhesive tape of claim 1, wherein said adhesive layer comprises an acrylic type or rubber type adhesive.

7. (Withdrawn) A method of removing the adhesive tape of claim 1 from a bonded article, said method comprising the steps of:

heating the adhesive tape to a temperature greater than the activation temperature; and

if the temperature-indicating material changes color, pulling the adhesive tape from the bonded article at an angle of up to 35° relative to a bonded surface on the bonded article.

8. (Currently Amended) An adhesive tape comprising:

a film substrate having (i) an elastic modulus of at least 7.0×10^8 Pa at a temperature below an activation temperature, said activation temperature ranging from about 25°C to about 100°C, (ii) an elastic modulus of not greater than 5.0×10^8 Pa at a temperature exceeding said activation temperature, and (iii) an elongation at break of at least 150% at a temperature exceeding said activation temperature, said film substrate comprising an aliphatic polyester, ~~polyvinyl chloride, polycarbonate,~~ [[a]] polycaprolactone, ~~polyethylene terephthalate resin, glycol modified polyethylene terephthalate resin, polybutylene terephthalate resin, polyamide resin, polyvinylidene fluoride, one or more shape memory resins,~~ or a combination thereof; and

a first adhesive layer disposed on at least one surface of said film substrate.

9. (Canceled)

10. (Withdrawn) The adhesive tape of claim 8, wherein said film substrate comprises a polymer or copolymer formed from one or more hydroxycarboxylic acid monomers, said hydroxycarboxylic acid monomers comprising L-lactic acid, D-lactic acid, glycolic acid, 3-hydroxybutyric acid, 4-hydroxybutyric acid, 4-hydroxyvaleric acid, 5-hydroxyvaleric acid, 6-hydroxycaproic acid, or a combination thereof.

11. (Withdrawn) The adhesive tape of claim 8, wherein said film substrate comprises a polymer or copolymer formed from L-lactic acid, D-lactic acid, or a combination thereof.

12. (Withdrawn) The adhesive tape of claim 8, wherein said one or more shape memory resins comprise a polyisoprene type resin, a styrene-butadiene copolymer, a polynorbornane type resin, a polyurethane type resin, a fluorine-containing resin, ε-polycaprolactone, a polyamide resin, or a combination thereof.

13. (Original) The adhesive tape of claim 8, further comprising a temperature-indicating material, wherein the temperature-indicating material experiences a color change when exposed to a color-changing temperature.

14. (Original) The adhesive tape of claim 13, wherein the temperature-indicating material comprises a higher fatty acid ester; mercury iodide complexes of cholesterol; bianthrone; cyanine pigments; spirofuran-type compounds; triphenylmethane-type Ca and Mg salts; cobalt; nickel; iron; copper; chromium; manganese; lead; or a combination thereof.

15. (Original) The adhesive tape of claim 8, wherein said first adhesive layer comprises an acrylic type or rubber type adhesive.

16.-17. (Canceled)

18. (Original) The adhesive tape of claim 8, further comprising a foam layer.

19. (Canceled)

20. (Withdrawn) A method of removing the adhesive tape of claim 8 from a bonded article, said method comprising the steps of:

heating the adhesive tape to a temperature greater than the activation temperature; and

pulling the adhesive tape from the bonded article at an angle of up to 35° relative to a bonded surface on the bonded article.

21. (Withdrawn) A method of removing an adhesive tape from a bonded article, said method comprising the steps of:

heating the adhesive tape to a temperature greater than an activation temperature, said activation temperature ranging from about 25°C to about 100°C, said adhesive tape comprising a film substrate having (i) an elastic modulus of at least 7.0×10^8 Pa at a temperature below the activation temperature, (ii) an elastic modulus of not greater than 5.0×10^8 Pa at a temperature exceeding the activation temperature, and (iii) an elongation at break of at least 150% at a temperature exceeding the activation temperature; said adhesive tape further comprising a temperature-indicating material disposed within or on a film substrate, wherein the temperature-indicating material experiences a color change when exposed to a temperature above the activation temperature, said method further comprising the step of:

monitoring the temperature-indicating material; and

if the temperature-indicating material changes color, pulling the adhesive tape from the bonded article at an angle of up to 35° relative to a bonded surface on the bonded article.

22. (Canceled)

23. (New) An adhesive tape comprising:

a film substrate having one or more individual layers, wherein the film substrate has (i) an elastic modulus of at least 7.0×10^8 Pa at a temperature below an activation temperature, the activation temperature in a range greater than 25°C to less than 75°C, (ii) an elastic modulus of not greater than 5.0×10^8 Pa at a temperature exceeding the activation temperature, and (iii) an elongation at break of at least 150% at a temperature exceeding the activation temperature;

an adhesive layer disposed on at least one surface of the film substrate; and

a temperature-indicating material disposed within or on the film substrate, wherein the temperature-indicating material experiences a color change when exposed to a color-changing temperature.

24. (New) The adhesive tape of claim 23, wherein the temperature-indicating material comprises a higher fatty acid ester; mercury iodide complexes of cholesterol; bianthrone; cyanine pigments; spirofuran-type compounds; triphenylmethane-type Ca and Mg salts; cobalt; nickel; iron; copper; chromium; manganese; lead; or a combination thereof.

25. (New) The adhesive tape of claim 23, wherein said color-changing temperature is equal to or greater than the activation temperature.

26. (New) The adhesive tape of claim 23, wherein said adhesive layer comprises an acrylic type or rubber type adhesive.

27. (New) An adhesive tape comprising:

a film substrate having one or more individual layers, wherein the film substrate has (i) an elastic modulus of at least 7.0×10^8 Pa at a temperature below an activation temperature, the activation temperature ranging from about 25°C to about 100°C, (ii) an elastic modulus of not greater than 5.0×10^8 Pa at a temperature exceeding the activation temperature, and (iii) an elongation at break of at least 150% at a temperature exceeding the activation temperature;

an adhesive layer disposed on at least one surface of the film substrate;

a temperature-indicating material disposed within or on the film substrate, wherein the temperature-indicating material experiences a color change when exposed to a color-changing temperature; and

a foam layer disposed on at least one surface of the adhesive layer opposite the surface adjacent to the film substrate.

28. (New) The adhesive tape of claim 27, wherein the temperature-indicating material comprises a higher fatty acid ester; mercury iodide complexes of cholesterol; bianthrone; cyanine pigments; spirofuran-type compounds; triphenylmethane-type Ca and Mg salts; cobalt; nickel; iron; copper; chromium; manganese; lead; or a combination thereof.

29. (New) The adhesive tape of claim 27, wherein said color-changing temperature is equal to or greater than the activation temperature.